UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/748,853	12/30/2003	Carl J. Wheeler	CA1818	6433

93179 7590 01/20/2011

Sughrue Mion/VICAL
2100 Pennsylvania Avenue, N.W.
Washington, DC 20037

EXAMINER	
ROYDS, LESLIE A	

ART UNIT	PAPER NUMBER
1614	

NOTIFICATION DATE	DELIVERY MODE
01/20/2011	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

USPTO@SUGHRUE.COM
sughrue@sughrue.com
PPROCESSING@SUGHRUE.COM

Office Action Summary	Application No.	Applicant(s)	
	10/748,853	WHEELER, CARL J.	
	Examiner	Art Unit	
	Leslie A. Royds Draper	1614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 November 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *68,71,73,74 and 85-87* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *68,71,73,74 and 85-87* is/are rejected.

7)☒ Claim(s) *87* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claims 68, 71, 73-74 and 85-87 are presented for examination.

Applicant's Amendment filed November 3, 2010 has been received and entered into the present application.

Claims 68, 71, 73-74 and 85-87 remain pending and under examination. Claims 68, 71 and 85-86 are amended.

Applicant's arguments, filed November 3, 2010, have been fully considered. Rejections and/or objections not reiterated from previous Office Actions are hereby withdrawn. The following rejections and/or objections are either reiterated or newly applied. They constitute the complete set of rejections and/or objections presently being applied to the instant application.

Objection to the Claims (New Grounds of Objection)

Claim 87 is objected to for reciting a comma between the word "R_3" and the phrase "and R_4", which is grammatically awkward. Correction is required.

Claim Rejections - 35 USC § 112, First Paragraph, Written Description Requirement, New Matter (New Grounds of Rejection)

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 68, 71, 85 and 87 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention.

In particular, the specification and claims as originally filed fail to provide clear written description for the newly added limitations directed to R_3 and R_4 being independently selected from C_1-C_5 heteroalkyl groups with 0 to 6 sites of unsaturation that may comprise from 0-5 heteroatoms (claims 68, 71 and 85).

Relevant disclosure regarding this newly amended limitation is found at p.6, l.11-14, of the instant specification, which states, "In another aspect of this embodiment, R_1 and R_2 are identical and are selected from the group consisting of $C_{14}H_{29}$ and $C_{12}H_{25}$. In some of these compounds, R_3 and R_4 are selected from the group consisting of C_1-C_5 alkyl groups and C_1-C_5 heteroalkyl groups having one heteroatom therein. In other compounds, R_3 and R_4 are methyl groups."

While such disclosure has been noted, it is noted that the disclosure of R_3 and R_4 may be independently selected from, inter alia, C_1-C_5 heteroalkyl groups having one heteroatom therein fails to provide clear written support to now claim that R_3 and R_4 may be selected from, inter alia, C_1-C_5 heteroalkyl groups having 0-5 heteroatoms therein. The range of 0-5 heteroatoms circumscribes embodiments of compounds wherein R_3 and R_4 not only include one heteroatom (as specifically disclosed in the specification at p.6, l.11-14), but also fewer heteroatoms (i.e., no heteroatoms) or more heteroatoms (i.e., specifically, 2-5 heteroatoms). This newly added limitation represents a clear broadening of the subject matter both claimed and disclosed in the specification and claims as originally filed that is not adequately supported by the original disclosure and clearly circumscribes a concept that was not in Applicant's possession at the time of the invention.

As stated in MPEP §2163, "The subject matter of the claim need not be described literally (i.e., using the same terms of in haec verba) in order for the disclosure to satisfy the description requirement." However, considering the teachings provided in the specification as originally filed, Applicant has failed to provide the necessary teachings, by describing the claimed invention in such a way as to reasonably convey to one skilled in the relevant art that Applicant had possession of the concept of R_3 and R_4 being

independently selected from C_1-C_5 heteroalkyl groups with 0 to 6 sites of unsaturation that may comprise from 0-5 heteroatoms (claims 68, 71 and 85).

Accordingly, the claims are considered to lack sufficient written description and are properly rejected under 35 U.S.C. 112, first paragraph.

Claim Rejections - 35 USC § 112, First Paragraph, Written Description Requirement

(New Grounds of Rejection)

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 86 is rejected under 35 U.S.C. 112, first paragraph as failing to comply with the written description requirement. The claim contains subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention.

Present claim 86 is directed to a method of delivering an anionic molecule into a cell, comprising forming a lipid complex by contacting the anionic molecule with a composition comprising an effective amount of a compound, wherein said compound is selected from the group consisting of dioleyl rosenthal inhibitor ether (DORIE) carboxylate, dimyristyl rosenthal inhibitor ether (DMRIE) carboxylate, DMRIE carboxylate propyl amide, DMRIE carboxylate methionine-methylester amide, DMRIE carboxylate methionine-leucine-methylester amide, and DMRIE carboxylate methionine-leucine-phenylalanine-methylester amide, and contacting a cell with the lipid complex to deliver a biologically effective amount of the anionic molecule into the cell.

In particular, the specification as originally filed fails to provide adequate written description of the chemical structure of the claimed anionic molecules dioleyl rosenthal inhibitor ether (DORIE)

carboxylate, dimyristyl rosenthal inhibitor ether (DMRIE) carboxylate, DMRIE carboxylate propyl amide, DMRIE carboxylate methionine-methylester amide, DMRIE carboxylate methionine-leucine-methylester amide, and DMRIE carboxylate methionine-leucine-phenylalanine-methylester amide (claim 86).

Regarding the requirement for adequate written description of chemical entities, Applicant's attention is directed to the MPEP §2163. In particular, Regents of the University of California v. Eli Lilly & Co., 119 F.3d 1559, 1568 (Fed. Cir. 1997), cert. denied, 523 U.S. 1089, 118 S. Ct. 1548 (1998), holds that an adequate written description requires a precise definition, such as by structure, formula, chemical name, or physical properties, "not a mere wish or plain for obtaining the claimed chemical invention." Eli Lilly, 119 F.3d at 1566. The Federal Circuit has adopted the standard set forth in the Patent and Trademark Office ("PTO") Guidelines for Examination of Patent Applications under the 35 U.S.C. 112.1 "Written Description" Requirement ("Guidelines"), 66 Fed. Reg. 1099 (Jan. 5, 2001), which state that the written description requirement can be met by "showing that an invention is complete by disclosure of sufficiently detailed, relevant identifying characteristics," including, inter alia, "functional characteristics when coupled with a known or disclosed correlation between function and structure..." Enzo Biochem, Inc. v. Gen-Probe Inc., 296 F.3d 316, 1324-25 (Fed. Cir. 2002) (quoting Guidelines, 66 Fed. Reg. at 1106 (emphasis added)). Moreover, although Eli Lilly and Enzo were decided within the factual context of DNA sequences, this does not preclude extending the reasoning of those cases to chemical structures in general. Univ. of Rochester v. G.D. Searle & Co., 249 Supp. 2d 216, 225 (W.D.N.Y. 2003).

Applicant's specification provides an identification of the instantly claimed species of anionic molecules (i.e., the compounds dioleyl rosenthal inhibitor ether (DORIE) carboxylate, dimyristyl rosenthal inhibitor ether (DMRIE) carboxylate, DMRIE carboxylate propyl amide, DMRIE carboxylate methionine-methylester amide, DMRIE carboxylate methionine-leucine-methylester amide, and DMRIE carboxylate methionine-leucine-phenylalanine-methylester amide) in name only. Though it is noted that

Applicant has described an extensive genus of anionic molecules of the structures presented in, e.g., claims 68, 71 or 85, the instant specification lacks any description of the exact chemical structure of those anionic molecules identified as dioleyl rosenthal inhibitor ether (DORIE) carboxylate, dimyristyl rosenthal inhibitor ether (DMRIE) carboxylate, DMRIE carboxylate propyl amide, DMRIE carboxylate methionine-methylester amide, DMRIE carboxylate methionine-leucine-methylester amide, and DMRIE carboxylate methionine-leucine-phenylalanine-methylester amide. It is unclear if these anionic molecules fall within the generic structures presented in the specification and/or claims or if they are of a different, yet undescribed, chemical structure.

The instant specification fails to recite any structural depictions, chemical formula, chemical name(s) or other such properties that would provide adequate written description of the actual chemical structure of the claimed anionic molecules dioleyl rosenthal inhibitor ether (DORIE) carboxylate, dimyristyl rosenthal inhibitor ether (DMRIE) carboxylate, DMRIE carboxylate propyl amide, DMRIE carboxylate methionine-methylester amide, DMRIE carboxylate methionine-leucine-methylester amide, and DMRIE carboxylate methionine-leucine-phenylalanine-methylester amide. The lack of such description fails to reasonably apprise one of ordinary skill in the art at the time of the invention exactly what compounds are claimed in instant claim 86 such that the compounds that Applicant was actually in possession of, and intended to be used within the context of the present invention, at the time of the present invention are adequately described. The fact that the exact chemical structure of such molecules is not described and cannot be appropriately identified from the specification as filed fails to inform the skilled artisan of the identity of the compounds such that they could actually be used in accordance with the invention. Furthermore, the lack of clear recognition of such compounds in the art as being "well-known" further exacerbates the issue because Applicant cannot rely upon what is well-known and/or well-established in the prior art to provide adequate written description of these claimed anionic molecules.

Though it is noted that Applicant apparently provides chemical structures of the cytofectins DORI, DORIE, DDRIE, DLRIE, DMRIE, DPRIE, DSRIE, βAE-DMRIE, DMRIE-Ox and DOPE at p.28-29 of the instant specification, such cytofectins appear to be simply the base compound of the anionic molecule (e.g., DMRIE, DORIE, etc.) without the described substitutions noted in the claimed anionic molecules (e.g., DMRIE carboxylate propyl amide, etc.). What the specification fails to provide or make absolutely clear is where in the molecule the additional substitutions are present and how such substitutions affect the overall chemical structure of the compound. In the absence of sufficient disclosure or description identifying the actual chemical structure of the claimed anionic molecules dioleyl rosenthal inhibitor ether (DORIE) carboxylate, dimyristyl rosenthal inhibitor ether (DMRIE) carboxylate, DMRIE carboxylate propyl amide, DMRIE carboxylate methionine-methylester amide, DMRIE carboxylate methionine-leucine-methylester amide, and DMRIE carboxylate methionine-leucine-phenylalanine-methylester amide intended to be used within the presently claimed method invention, the skilled artisan would not be able to rely upon the description provided by Applicant in the present disclosure to determine the actual identity of the claimed compounds.

Considering the teachings in the specification as originally filed, Applicant has failed to provide the necessary teachings, by describing the claimed invention with all of its limitations using such descriptive means that fully set forth the claimed invention, in such a way as to reasonably convey to one skilled in the relevant art that Applicant had possession of chemical structure of the claimed anionic molecules dioleyl rosenthal inhibitor ether (DORIE) carboxylate, dimyristyl rosenthal inhibitor ether (DMRIE) carboxylate, DMRIE carboxylate propyl amide, DMRIE carboxylate methionine-methylester amide, DMRIE carboxylate methionine-leucine-methylester amide, and DMRIE carboxylate methionine-leucine-phenylalanine-methylester amide (claim 86).

Accordingly, the claims are considered to lack sufficient written description and are properly rejected under 35 U.S.C. 112, first paragraph.

Claim Rejections - 35 USC § 112, Second Paragraph (New Grounds of Rejection)

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 68 and 85 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

Instant claim 68 recites that Z is selected from the group consisting of O, S, NR_1, NH and Se, but then goes on to state that Z is an atom of said amino acid, peptide, polypeptide, protein, mono-, di- or polysaccharide, which is confusing because (1) R_6 is defined as being an amino acid, peptide, polypeptide, protein, mono-, di- or polysaccharide, not Z, and (2) the narrower limitation of Z being selected from the group consisting of O, S, NR_1, NH and Se conflicts with the broader limitation of Z being apparently any atom of an amino acid, peptide, polypeptide, protein, mono-, di- or polysaccharide. Thus, it is unclear whether the claim is intended to circumscribe embodiments wherein R_6 may be selected from an amino acid, peptide, polypeptide, protein, mono-, di- or polysaccharide and Z is an O, S, NR_1, NH or Se contained therein the amino acid, peptide, polypeptide, protein, mono-, di- or polysaccharide of R_6, or whether the claim is intended to circumscribe embodiments wherein R_6 may be selected from an amino acid, peptide, polypeptide, protein, mono-, di- or polysaccharide and Z may be any atom therein. This ambiguity in the claims fails to clearly, precisely or deliberately set forth the metes and bounds of the compounds for which Applicant is presently seeking protection. As a result, one of ordinary skill in the art at the time of the invention would not have been reasonably apprised of the scope of subject matter intended to be circumscribed by the instant claims. Clarification is required.

A similar issue exists in instant claim 85, but for the more limited subset of options provided for the group designated as Z, and, thus, requires the same clarification of the same issue described in detail in the preceding paragraph.

For these reasons, the claims fail to meet the tenor and express requirements of 35 U.S.C. 112, second paragraph, and are, thus, properly rejected.

Claims 71, 73-74 and 87 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

Instant claim 71 provides for R_7 and R_8 to be independently selected from the group defined for R_3 and R_4 and one of R_7 and R_8 can further be an amino acid, peptide polypeptide, protein, mono-, di- or polysaccharide, but then goes on to state that the amino nitrogen of said amino acid, peptide, polypeptide, protein, mono-, di- or polysaccharide is the nitrogen to which R_7 or R_8 is attached. Such limitations fail to clearly, precisely or deliberately set forth the identities of R_7 and R_8 and the manner in which they are bound because the claim states that the nitrogen atom to which R_7 and R_8 are attached is an amino nitrogen of the amino acid, peptide, polypeptide, protein, mono-, di- or polysaccharide, but initially states that R_7 and R_8 may be selected from any of the groups defined for R_3 or R_4 and, thus, does not necessarily require that any one or more of R_7 and/or R_8 is an amino acid, peptide, polypeptide, etc. This issue is further complicated by the fact that the claim states that one of R_7 and R_8 "can further be" (i.e., not necessarily required to be) an amino acid, peptide, polypeptide, etc. These conflicting limitations fail to clearly set forth the metes and bounds of the compounds for which Applicant is presently seeking protection and, as a result, fail to reasonably apprise one of ordinary skill in the art at the time of the invention of the scope of subject matter circumscribed by the instant claims. Clarification is required.

For these reasons, the claims fail to meet the tenor and express requirements of 35 U.S.C. 112, second paragraph, and are, thus, properly rejected.

Conclusion

Rejection of claims 68, 71, 73-74 and 85-87 is proper.

No claims of the present application are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leslie A. Royds Draper whose telephone number is (571)-272-6096. The examiner can normally be reached on Monday-Friday (9:00 AM-5:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ardin H. Marschel can be reached on (571)-272-0718. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Leslie A. Royds Draper/
Primary Examiner, Art Unit 1614

January 14, 2011